wallas marin

wallas

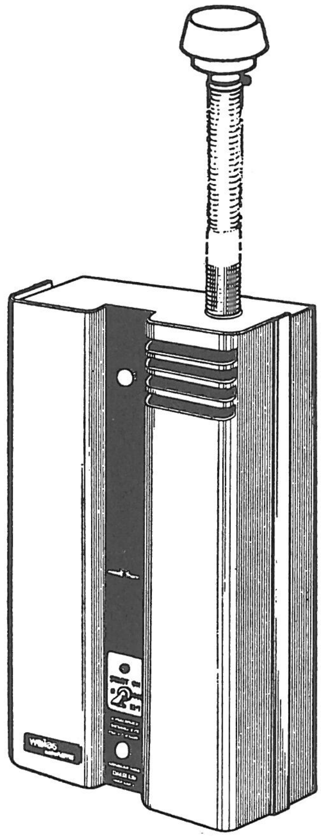
CABIN HEATER TYPE 1600

September 1985

OPERATION AND INSTALLATION INSTRUCTIONS

SPECIFICATIONS

Heating effect	Full max. abt 1400 W / Reduced 900 W
Fuel	Lamp paraffin oil/kerosene
Fuel consumption	Full max. abt 0.15 l/h / Reduced abt. 0.1 l/h
Supply voltage	12 V d.c.
Current consumption	Full 0.5 A / Reduced 0.35 A Under start, 2 minutes 5 A
Dimensions	Height 445 mm, width 225 mm, depth 105 mm
Weight	Abt. 7 kg



FUNCTION

Wallas 1600 is a compact freeblowing cabinheater in the Wallas new heater generation in aluminiumprofile construction.
The new double blower arrangement gives an effective and compact construction. The heat blow can be directed also backward through bulkhead to next cabin by opening the back-blow damper.

The vaporizing type paraffin burner ignites with a glow coil and starts automatically after the main switch is switched to start position. The ignition, fuel pump, combustion blower and main blower functions and sequence are electronically controlled and fully stabilized against battery voltage variations. An aftercooling thermostat keeps the combustion fan running after switching off the heater until it is cooled.

The new combustion system takes the air for combustion from the cabin and causes so a forced fresh air ventilation of abt. 7 m^3/h, which keeps the cabin fresh, dry and free from fuel odours. All combustion gases are exhausted out safely.

There are two safety functions; — first, an electronic monitor controls the combustion blower speed and current and cuts off automatically the fuel pump and fuel feeding in case of combustion blower failure, — secondly, an overheating cut-out switches off the fuel pump in case of overheating.

The built-in self priming and dosing electromagnetic fuel pump developed by Wallas sucks up the fuel from a separate fuel tank below the heater. The unburned excess fuel flows back to tank by gravity. There is no fuel under pressure. All this makes this heater absolutely safe.
Standard accessories are normally: Heater + exhaust head with shield plate + 1 metre exhaust tube. Extra accessories are: Fuel tank, shield profile for exhaust tube, back blow vent and heat insulation for exhaust through deck.

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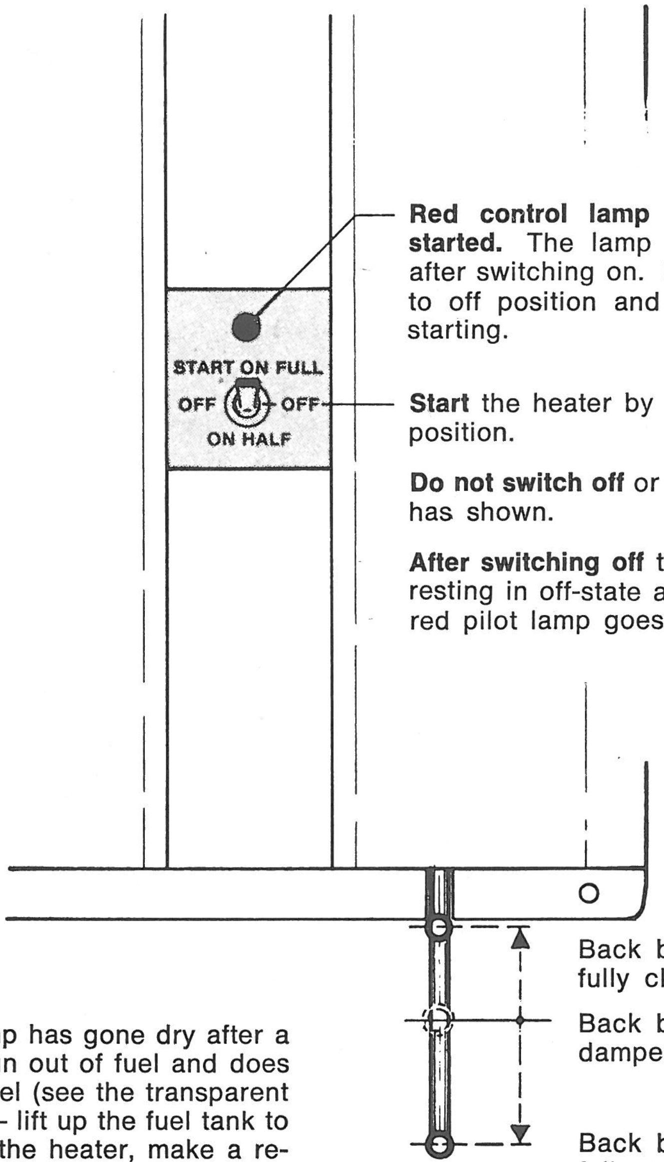
BEFORE START CHECK

- **That the heater and exhaust tube are securely mounted and so fixed that the exhaust tube can not come off from heater or deck exhaust pipe.**
- **That the fuel lines are correctly led** and that the tank filter is placed at the suction tube end, The black return fuel tube must have continuous fall to tank without air lock forming rises upward, — see next page.
- **That you have right fuel,** — lamp quality paraffin oil = slashed kerosene.
- **That the exhaust head is not closed.** The exhaust head is closed by pushing down and turning right and opened by turning left.



Do not push the red overheating switch knob in hot state.
It will release and can not be reset before the heater has cooled down.

Red control lamp indicates that combustion has started. The lamp will light up abt. 4—5 minutes after switching on. If the lamp does not light, switch to off position and wait abt. 5 minutes before re-starting.

Start the heater by turning the toggle to START ON position.

Do not switch off or to half effect before the red lamp has shown.

After switching off the heater will not re-start before resting in off-state abt. 5 minutes and not before the red pilot lamp goes out.

Back blow fully closed

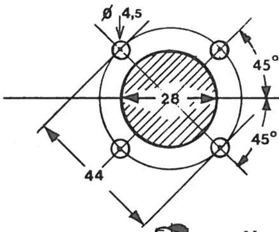
Back blow damper shaft

Back blow fully open

If the fuel pump has gone dry after a long rest or run out of fuel and does not suck up fuel (see the transparent suction line) — lift up the fuel tank to a level above the heater, make a re-start and keep the tank high until the combustion starts.

Never switch off the heater by the battery master switch. — After switching off the heater must have power for at least 10 min. until the aftercooling switch shuts off the fan motor.

Exhaust take through holes. Use exhaust head base as template for drilling. **When exhaust** through deck **heat insulation** set is used. The take-through hole diameter is Ø 52—54 mm.



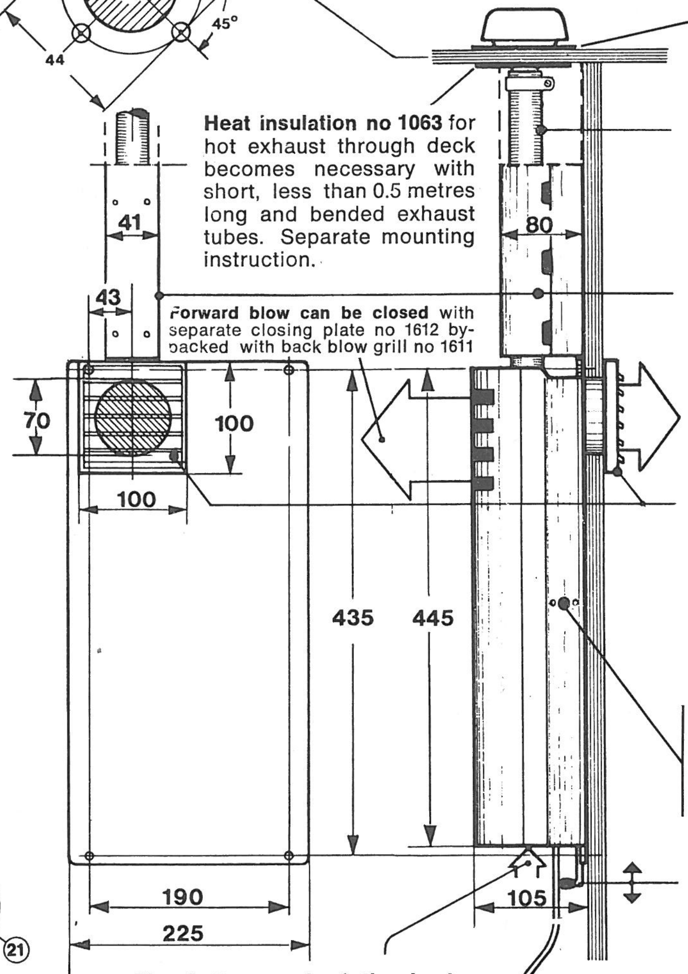
Locating the exhaust head. The exhaust head should be placed on horizontal or inclined surfaces so that wind can pass the head and not create back pressure against a vertical surface. The take-through deck must be sealed carefully with silicone or rubber bedding compound.

Exhaust head 1060, closeable with shield plate 1062 for protection against misscolouring of deck. The shield plateiss mounted between the exhaust head base and deck in following order:

- Exhaust head
- Thinner 2 mm rubber-cork gasket
- Stainless shield plate
- Thicker 3 mm rubber-cork gasket
- Deck

Heat insulation no 1063 for hot exhaust through deck becomes necessary with short, less than 0.5 metres long and bended exhaust tubes. Separate mounting instruction.

Exhaust tube no 1028, stainless, flexible, outer Ø 31 mm, inner Ø 28 mm, max length 3 metres.



Forward blow can be closed with separate closing plate no 1612 bypacked with back blow grill no 1611

Shield profile no 1030 of anodized aluminium for shielding and covering the exhaust tube.

Hole Ø 70 mm for back blow through bulkhead. Hole center point 43 mm down from the upper heater fastening screw line and 43 mm in from the screw side line.

Back blow.

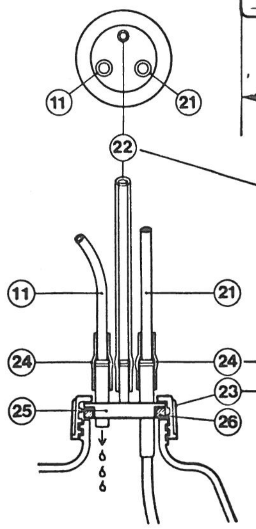
Back blow grill no 1611 can be re-set for 4 flow directions.

Overheating cut-out switch. For reset push in.
Never press the switch in hot state. It will cut-out and not reset before the heater is cooled down

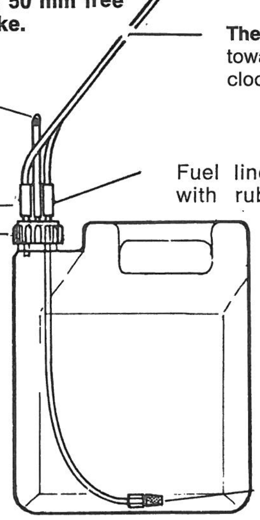
Shaft for back blow damper adjustment.

The bottom end of the heater must be kept at least 50 mm free for air intake.

The return fuel line (black) must have continuous fall toward fuel tank without any loops or rises forming air clocks. All excess length must be cut out.



Fuel lines must be secured to the tank fitting with rubber sleeves.



Fuel tanks of Polyethen

	width	length	height
5 l type 2024	120	220	275 mm
10 l type 2026	210	380	195 mm

Filter must be attached to the end of the intake line.

Tank adaptor 23/25

11 Fuel return line Ø 3/5 mm, black, Polyamid
21 Fuel suction line, Ø 2/5 mm, transparent, Polyamid
22 Tank vent line, Ø 5/7 mm, PVC.
The tank must have a vent line to prevent spillage if the vessel heals.
Secure the vent line at the top to prevent shiphoning.
23 Rubber sleeves to secure fuel lines
26 Gasket

Sound insulation

If the pump function will be disturbing the sound can be suppressed by rubber insulating the heating fastening screws, alternatively by rubber bushings between fastening screws and heater or screws and bulkhead. For this the screw holes must be uppbored to the size of the bushing.

12 V battery supply

Power supply cables to battery must be connected, **red to positive and blue to negative pole.**
The positive lead (red) must have A 8—10 amp. in line fuse.
If you extend the power supply cables the core area must be min 1.5 mm² (SWG 10) to max 2.5 metres and min. 2.5 mm² (SWG 8) to max 4 metres.

SOME TROUBLE-SHOOTING HINTS

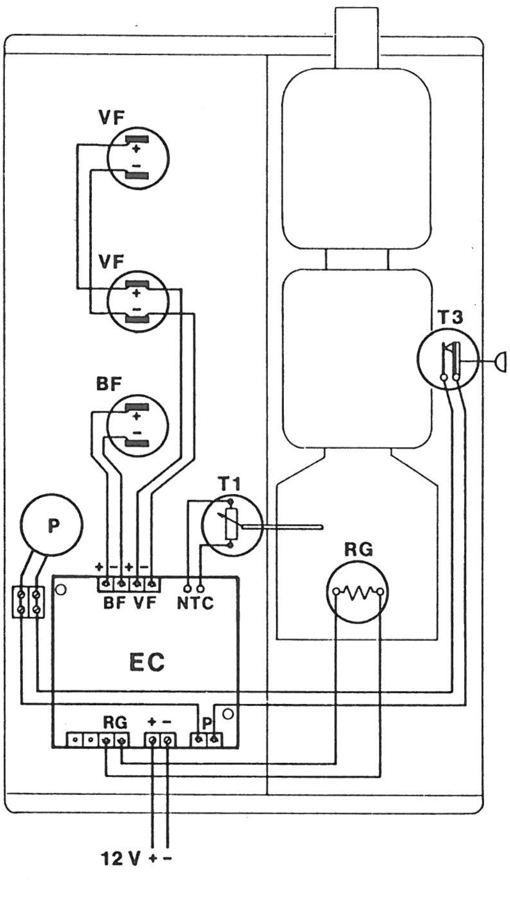
The most common fault reasons are:

1. The black excess fuel return tube does not have continuous unbroken fall to fuel tank. This hinders the free flow of excess fuel to tank and leads to dirty wet burning, carbonizing of the burner and burn-out of the glow coil primer.
2. Start with closed exhaust head.
3. Water in through exhaust.
4. Wrong, unsuitable quality of fuel, missing suction filter in tank, water or impurities in fuel.

Some 2-5 % carburator alcohol (isoprophyl-alcohol) addition in fuel will solve water in fuel and cleans the fuel filters and fuel pump. Clogged heater/burner/fuel pumps can be cleaned by running the heater in cold state (after passing the start and priming phase) with carburator alcohol some 10-20 minutes.

5. Too weak battery supply cables or contact resistance in its fuse contact or cable contacts.
6. Switching off the battery supply during operation of the hot heater.
7. Longer operation of heater on reduced effect only can cause depositions on the combustion fan motor brushes which can lead to combustion disturbance and automatic safety switch out of the fuel pump.

This fault can be cured by letting the combustion fan motor BF (see the block diagram below) run by full 12 V some 10-15 minutes which cleans its brushes. For this the front cover plate of heater must be opened whereafter the combustion fan plug is detached from its contact on printed board and connected with suitable cables to full 12 V. Some 10-20 minutes run with 12 V d c will clean the brushes effectively and retain faultless combustion.



VF = Main fan motor
BF = Combustion blower motor
P = Fuel pump
T1 = Aftercooling thermistor
RG = Glow coil primer
T3 = Overheating cut-out switch
EC = Printed circuit board